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STATISTICAL BULLETIN

METROPOLITAN LIFE INSURANCE COMPANY

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The Motor Car Massacre

AT THE beginning of each year the country has looked forward hopefully to a reduction in the number of deaths in motor-car accidents; but the close of each year, with disappointing regularity, has found the toll higher than ever before.

Nineteen thirty-six was the worst year of all. How many lives actually were sacrificed we shall not know until toward the end of 1937, when official mortality data from the Bureau of the Census are made available. Estimates varying from 36,800 to 38,500 have been made. The divergence in these figures is wide, but there is general agreement that the number of deaths was measurably higher in 1936 than ever before. It is a question only of how much higher. Again, in 1937, the signs point to a further increase; for in the Industrial Department of the Metropolitan Life Insurance Company, where there are 17,500,000 insured persons, the automobile death rate for January and February of 1937 was 45 percent above the figure for the same period of last year. Similarly, the number of deaths in 131 cities reported upon by the United States Census Bureau for the first nine weeks of 1937, was 43 percent higher than last year. Furthermore, the estimate of the National Safety Council, for the whole country, shows a 24 percent rise up to the end of February.

To say that this mounting loss is discouraging to the large group of safety workers who are devoting so much of their time and energy to bring about a reduction, is putting the case far too mildly. No campaign in the interest of health or safety has been waged with greater zeal than that to reduce automobile accidents. Well-trained safety engineers, highway construction engineers, and automotive engineers have devoted their efforts toward making better machines and safer roadways. City streets and county highways the country over have been dotted with traffic lights and warning signs at danger points; grade crossings have been eliminated in large numbers; highways are better patrolled. Numerous laws and regulations have been enacted in the interest of safety. A vast program of education has been carried on by the National Safety Council, the American Red Cross, State motor vehicle and health bureaus, insur-

ance companies, police departments, chambers of commerce, and other organizations. The public press, almost daily, has drawn attention to the seriousness of the situation.

Does the increasing death rate mean, then, that what has been done has been of no avail? Decidedly not. It can be shown, for what solace there may be in it, that the death rate is not increasing nearly as fast as automobile registrations and car mileage. This year the open winter in the East has kept cars on the road and thus increased the mileage over last year, when a severe winter discouraged most drivers from venturing forth. Something undoubtedly has been accomplished, and the expenditure of money and effort has been fully justified.

But we must not be lulled into complacent satisfaction by a lowering of the death rate per mile of travel. We cannot accept it as a natural law that more automobile mileage must needs mean more deaths. The objective is not merely to reduce the death rate per mile of travel, but to cut down the actual number of deaths; and until the number of deaths is lowered materially there can be no real satisfaction with the safety crusade. It is the absolute number of deaths that should be kept before the public.

If, to bring about substantial reductions in fatalities from automobile accidents requires further intensive effort and increasing manyfold the number of persons engaged in the campaign, then the requisite ways and means will somehow be found. If, furthermore, one of the necessary conditions for success in this campaign is actual control of the speed at which automobiles may be operated, and if other similar restrictions are found to be imperative, then the public must be persuaded to accept these restrictions.

Thirty-seven thousand lives, or for that matter, 25,000 or 10,000 each year, is an exorbitant death toll, which we cannot accept without a struggle, no matter what may be our population or car mileage.

The Chances of Reaching Age 65

CURRENT interest in pensions inevitably raises two questions in the mind of the individual; first, what are his chances of attaining the age at which the pension becomes effective; second, how long may he expect to live thereafter? It is a simple enough matter to answer these questions on the basis of an average for the general population. The requisite computations have been carried out by means of the life tables for the United States for the period 1929–1931, in such way as to give the chances per thousand of surviving from any specified age up to age 65. These results are shown separately for white males and white females in the table on page 3.

An inspection of this table shows, in the first place, that for females

the chances of reaching 65 are consistently higher than for the males. For example, at age 15, a female has 659 chances out of 1,000 to reach age 65; for a male of the same age, the chances are 589 per 1,000. At age 25, the respective chances are 675 and 607 per 1,000; by age 35, the corresponding figures are 701 and 632; and at age 45, they are 739 and 676. It is to be observed from the figures cited that the chances of reaching 65 do not vary markedly with age during that period of life in which the normal person is building up his training and experience to maximum proficiency. At ages higher than 45, the chances of reaching 65 increase rapidly with age, until at age 64, with only one more year to reach the goal, they are practically 970 per 1,000. Having attained age 65, the average white male still has an expectation of life of 11.79 years, and the average white female 12.83 years, according to the life tables for the United States, as prepared by the Statistical Bureau of the Metropolitan Life Insurance Company.

Life tables computed separately for the urban and rural areas of our

Chances per 1,000 of Surviving from a Specified Age to Age 65, White Persons by Sex, According to Life Tables for the United States (exclusive of Texas and South Dakota), 1929–1931

Age	Males	Females	Age	Males	Females
15	589	659	40	651	718
16	590	660	41	655	722
17	592	661	42	660	726
18	593	662	43	665	730
19	595	664	44	670	735
20	597	665	45	676	739
21	598	667	46	683	745
22	600	669	47	689	750
23	602	671	48	697	756
24	604	673	49	705	763
25	607	675	50	713	769
26	609	678	51	722	777
27	611	680	52	732	785
28	614	682	53	743	794
29	616	685	54	755	803
30	618	687	55	768	814
31	621	690	56	782	825
32	624	693	57	798	837
33	626	695	58	815	851
34	629	698	59	834	866
35	632	701	60	855	883
36	636	704	61	878	902
37	639	707	62	904	923
38	643	711	63	932	946
39	646	714	64	964	971

country in 1930 show that the rural resident has materially better chances of reaching age 65 than has his city cousin. Taking the figures for age 35 by way of example, the urban white male has 571 chances out of 1,000 to reach age 65, while for the rural white male the chances are 702 per thousand. For females, the corresponding figures are 663 and 752 respectively. For those who attain age 65, the expectation of life is as follows: urban white males, 10.80 years; urban white females, 12.36 years; rural white males, 12.73 years; and rural white females, 13.50 years. These figures reflect the familiar fact that urban mortality is distinctly higher than rural. In small part this may be due to the influx of sick persons from the country to the city for hospitalization. But undoubtedly the excess of the urban mortality is, for the most part, a real reflection of some disadvantage to health in city life. This experience is not peculiar to the United States, but is clearly presented also in the latest life tables for England and Wales, for example, representing the mortality of the period 1930–1932.

The data which have been presented relate to the average of our general population. The individual, naturally, may ask how the figures for the average are applicable to his own case. To this it must be remarked, first of all, that no life table or any other document can, of course, tell any particular individual at what age he will die. All that a life table can do, is to tell him how many years of life are left, to a man of his age, assuming that he is representative of the average. Of the particular combination of circumstances or accidents which in his case will determine the time of his death, the life table cannot, of course, give the remotest hint. Neither can the life table, based on the mortality of the population as a whole, make allowance for such factors bearing upon his prospects of longevity as his particular occupation, social environment and habits, present and past physical condition, inherited characteristics, etc. It is clear that we lack statistical data sufficiently detailed to make adequate allowance for even one of those factors taken by itself. We do, however, have evidence that professional men, as a class, have better chances of survivorship than unskilled laborers; that men of regular habits enjoying wholesome companionship are more likely to reach old age than those who are not so careful; that the class of persons suffering from any physical impairment does not have as good prospects for longevity as those free from such impairments; and that those people whose parents and grandparents have attained a ripe old age may themselves expect to live longer, on the average, than those whose immediate ancestry was not so favored. The individual, then, may try to gauge roughly the variation of his own prospects of reaching 65 from that for the general average by taking account of factors such as those just named.

What are the prospects for increasing the chances of attaining age 65 and of living after that age? Here we are dealing, in large part, with the middle and higher ages of life where medical science must cope with the problems of the degenerative diseases and cancer. Progress has not been as rapid in the control of these conditions as in dealing with the diseases of early life, adolescence, and the younger adult ages. The life tables show that in 1901 a white male of age 35 had 575 chances out of 1,000 to reach age 65. This is to be compared with a corresponding figure of 632 for 1930. The respective figures for white females are 617 and 701 per thousand. At age 65, the expectation of life for white males was 11.51 years in 1901 and 11.79 years in 1930, an advance of 0.28 year; for white females the figures become 12.23 years in 1901 and 12.83 years in 1930, with an advance of 0.60 year. In other words, at advanced ages the gain in expectation of life has been relatively insignificant. It may be noted in passing that as regards the situation at midlife and later some countries make a more favorable showing than we, even though for the average length of life as a whole we have the advantage. This remark applies particularly to England and Wales, where the average length of life of males in 1930–1932 was 58.74 years, as compared with our white males, 59.31 years. In contrast with this, the expectation of life of white males in the United States, at age 35, namely 33.36 years, is surpassed by that of males in England and Wales at the same age, namely 33.87 years.

The provision of old-age pensions, aside from lengthening the remaining years of those actually in receipt of the benefit, may well be expected to have an advantageous effect also on the individual's chances of reaching the eligible age. For, on the one hand, such persons will, after retirement, be in a position to receive better care, including medical attention, than hitherto, with resultant prolongation of their life. On the other hand, the prospect of freedom from financial anxiety in old age cannot fail to react beneficially even during the productive period of those who, with moderate earnings, have difficulty in making adequate provision out of their own resources, so that a larger proportion of these will survive to reap the retirement benefits.

The Declining Mortality from Chronic Nephritis

A STEADY and impressive decrease in the death rate from chronic nephritis is one of the outstanding features of the mortality situation of recent years. This development is most surprising because deaths from the disease are largely concentrated in middle and old age, where the death rate from all causes combined is most stable. For, the causes of death at these ages usually reflect slowly developing changes within

the body itself rather than the immediate result of external factors. Chronic nephritis, more popularly known as Bright's disease, has always been an important cause of death. As recently as 1935 it was fourth in rank and accounted for close to 100,000 deaths in the United States, or 7 percent of the total for all causes.

Important as chronic nephritis still is, its death rate today is less than half what it was 25 years ago. Among Industrial policyholders of the Metropolitan Life Insurance Company the adjusted death rate (ages 1 to 74 years) from chronic nephritis in 1936 was 51.4 per 100,000, as compared with 109.1 in 1911, a decline of 52.9 percent. Actually, the fall is even greater than this comparison indicates. For, since 1925, chronic nephritis, when jointly certified with other diseases, has been more frequently accepted as the chief cause of death than before that year.

As the chart on page 7 shows, the fall in the death rate from chronic nephritis has not been continuous. The trend has very definite characteristics: (*a*) a period of stability for the first seven years (1911–1917); (*b*) a sharp decline beginning in 1918, the year of the influenza pandemic, and lasting through 1921; (*c*) a moderate rise from 1921 to 1926; and (*d*) a continuous and sizable drop from 1926 to the present. Much of the rise from 1921 to 1926 was concentrated in the form of a very sharp increase between 1924 and 1925, and was probably spurious, for it was at that time that the change previously described in classifying deaths from nephritis associated with other diseases went into effect.

The reduction in the recorded mortality from chronic nephritis extends in varying degree to white and colored persons of both sexes, and affects practically every age group. The greatest relative decrease, however, during the past 25 years, is found in young children. Their death rates today are 80 percent or more below those of 25 years ago. The declines have been greater among white males than among white females. Among men between the ages of 15 and 65, the decline is nowhere less than 50 percent, and reaches 70 percent between ages 25 and 45.

What is behind this extraordinary trend in a disease which is so largely concentrated in that period of life in which the general death rate has changed least? Obviously, powerful influences have been operating to bring about this change. Fortunately, it is possible to identify several of them, although we cannot exactly measure their relative importance. It will be clear, however, from the discussion which follows that a good deal of the decline is only apparent, and that the trend reflects less a change in the true incidence of nephritis than in the interpretation of the clinical picture in older persons dying of arteriosclerotic and hypertensive disease, in which the kidneys, the heart and vascular system are all involved. A part of the

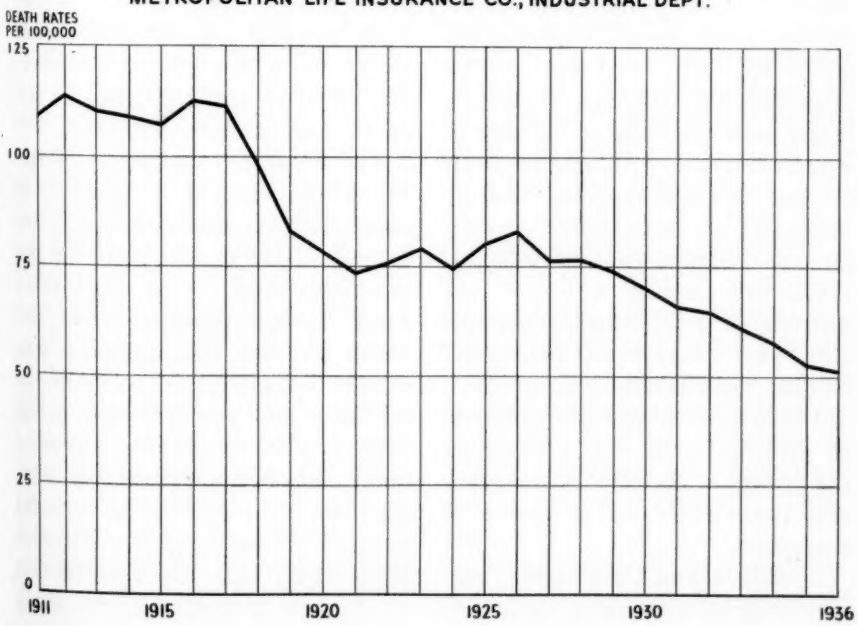
decline, on the other hand, is genuine, and we shall consider that aspect of the situation first.

The trend in nephritis mortality reflects, in part, changes in the relative incidence of etiological types of the disease. Cases of chronic nephritis may be subdivided into groups which vary as regards their cause, although they have some clinical features in common. Certain cases of chronic kidney disease result from antecedent infections. These cases often begin as an acute nephritis, and a certain proportion of them go on to the chronic stage. Nephritis of this type is much less common today than formerly, particularly at the younger ages. This favorable situation has been brought about partly by direct preventive measures against acute infections, and partly by indirect measures, such as improvement in environmental and hygienic conditions. Another factor which may be considered preventive is improved nursing care during acute infections. As a result the proportion of cases in which acute nephritis develops has decreased.

Prenatal care of pregnant women with chronic nephritis has probably helped also by preventing deaths during childbirth. The discovery of kidney disease may be made for the first time as a result of an examination early in pregnancy. The decline in the birth rate itself has probably operated to cut down the mortality

CHRONIC NEPHRITIS, 1911 TO 1936

STANDARDIZED ANNUAL DEATH RATES, AGES 1-74
METROPOLITAN LIFE INSURANCE CO., INDUSTRIAL DEPT.



from chronic nephritis in women of childbearing age, simply by cutting down the frequency of exposure to childbearing with its accompanying risk of kidney complications.

A part of the decline in chronic nephritis resulting from antecedent infections may have been brought about by the decreased virulence of such infections as scarlet fever, for example, in which a change in virulence is believed to have taken place. It is possible also that a small part of the decline in the chronic nephritis at the younger ages is spurious and results from greater precision, both in diagnosis, and in the use of the term "chronic."

Another factor tending to lower the death rate from chronic nephritis is the increased longevity of the patient with nephritis. In various ways, but largely because of the greater frequency of physical examinations, many cases of nephritis are discovered early when most can be done for the patient. Moreover, better understanding of the way in which the types of chronic nephritis common in middle and later life develop and the necessity for particular care regarding cardiac complications, have tended to retard the progress of such complications for many years. Improved treatment of chronic nephritis has been a beneficial influence, though probably less by prolonging life than by keeping the patient in better physical condition than under earlier modes of treatment.

Overshadowing these factors, particularly at the older ages, are certain changing ideas regarding the disease itself. The reduction in nephritis death rates arising in this way must be viewed as spurious. Two important ideas stand out in this connection: (1) the nature and seriousness of albuminuria, which is usually present in nephritis, and (2) the relationship of high blood pressure and arteriosclerosis to nephritis. Twenty years ago albumin in the urine was often taken as a definite indication of nephritis. Many individuals were treated for it on that account alone. Such cases were probably most frequent in childhood and adolescence. It is definitely known today that the albuminuria in certain types of these cases is harmless and not symptomatic of kidney disease. Consequently, deaths which formerly were ascribed to a supposed nephritis, the diagnosis of which was based solely upon the presence of albuminuria, are less frequently so certified today. The effect of this is greatest on the death rates at ages under 30.

The changing conception of the role of hypertension in nephritis is of far-reaching importance and, we believe, is the major factor in the decline in the recorded death rates from chronic nephritis after 45. Years ago high blood pressure was usually considered a symptom of nephritis and was assumed to be caused by it. While this is true of many cases of hypertension, it is inapplicable to a very large percentage, perhaps the majority. It is recognized today that the hypertension often comes first and that the effects

upon the kidney are secondary and usually of less importance than the effects upon the heart and the vascular system. The recognition of these truths came within the past 25 years, and it takes time to disseminate the information and obtain its acceptance. The result is that an increasing proportion of deaths originating in hypertension are being certified as heart or coronary disease, the trends of which have been upward during this period of declining death rates from nephritis.

It is entirely likely that the death rate from chronic nephritis will decline further, but it is impossible to say how long this process will continue or how far it will go. Among children, death rates from chronic nephritis are now so low that little additional improvement can be anticipated. In young adults, particularly among Negroes, there are still many preventable or postponable deaths from the disease. In middle and later life something can be done to reduce the mortality from nephritis. Enough is known about the disease to warrant this optimistic forecast. Among old people, however, little real improvement may be expected. Yet it is certain that a further decline will be recorded, most of which will be apparent because the full effect of the new ideas regarding the etiology of nephritis has not been exercised.

Health Record for February 1937

In no year since 1933 has the health outlook, during the first few weeks, been so unpromising as in 1937. Several previous years, however, have ended with excellent health records despite bad beginnings. This happened in 1933; and already there are evidences, this year, of distinct improvement over the bad record of January and early February. The more detailed aspects of the record are as follows:

The cumulative death rate among 17,500,000 Industrial policyholders of the Metropolitan Life Insurance Company, at the end of January, was 10.4 percent above the figure for the first month of 1936. In February, also, the mortality exceeded that of the like month of last year, but the cumulative rate for the two months was only 9.5 percent above last year's figure. During the first three weeks of March, death claims have only slightly exceeded the number paid last year, despite a considerable increase in the number of policyholders. A distinct improvement in mortality, as compared with 1936, has likewise been in evidence in the general population of New York City since early February, and the more recent mortality reports for 86 major cities of the country show pronounced betterment over the bad record for January. If conditions continue to improve, 1937 may yet be numbered among the more favorable health years.

On the basis of the cumulative death rates for the important causes

of death, up to the end of February, the most unfavorable showings for the Metropolitan Industrial policyholders are those for influenza, with a rate more than double that for the January-February period of 1936; diabetes, with a rise of 20 percent; diseases of the coronary arteries, 32 percent; pneumonia, 23 percent; appendicitis, 23 percent; accidents, 12 percent, and automobile fatalities, 45 percent. Smaller but significant increases are those for cancer, 8 percent; tuberculosis, 6 percent; and heart disease, 5 percent.

There are a number of favorable items in the 1937 mortality record to date. Of the four principal diseases of childhood, whooping cough alone has registered an increase over last year; and lower death rates than those recorded during the January-February period of 1936 are in evidence for syphilis, cerebral hemorrhage, diarrheal diseases, chronic nephritis, puerperal conditions and suicides.

Most outstanding among the favorable developments in the early 1937 record is a drop of 11 percent in the cumulative death rate for diseases of the maternal state. This is an excellent beginning, and inspires the hope that still another decline in the mortality from this group of diseases will be in evidence at the close of the year. If so, 1937 will be the 10th successive year to show a decrease in deaths from puerperal diseases among women in the wage-earning population of the country. The mortality from diseases incidental to pregnancy and childbirth has also been dropping continuously in the general population of the United States. Obviously, the decline in the country's birth rate has been an important factor in reducing the puerperal death rate; for increasingly fewer women have been exposed to the hazards of the puerperium. It is nevertheless true that the drop in the puerperal death rate has been much greater than that in the birth rate. This denotes that genuine improvement has taken place. The credit is ascribable, in large part, to the increasingly better medical supervision and nursing care that American women, as a class, have been receiving before, during, and after delivery.

February registered a rather favorable sickness record in the general population of the United States. There was, it is true, still high prevalence of influenza, though not as high as in January. Measles and scarlet fever showed the usual seasonal increases, but there was less sickness than during February 1936. Diphtheria cases were fewer than in either January 1937 or February 1936. There was, however, increased incidence of smallpox as compared with January, and the number of cases reported exceeded that for any February of the last five years. There were 937 cases of this disease reported during the month, and two thirds of these occurred in six States —Illinois, Iowa, Kansas, North Dakota, Montana, and Oregon.

The following table shows the mortality among Industrial policyholders for February 1937, January 1937, and February 1936, together with the cumulative rates for the first two months of each year.

METROPOLITAN LIFE INSURANCE COMPANY

Death Rates per 100,000 for Principal Causes. Weekly Premium-Paying Business in Industrial Department. All Ages (Annual Basis).*

MONTHS OF FEBRUARY 1937, JANUARY 1937, AND FEBRUARY 1936.

CAUSES OF DEATH	ANNUAL RATE PER 100,000 LIVES EXPOSED*				
	February 1937	January 1937	February 1936	Cumulative January-February	
				1937	1936
TOTAL—ALL CAUSES	1013.3	970.7	934.7	991.1	905.1
Typhoid fever	.6	.4	.2	.5	.4
Measles	.7	.9	1.2	.8	1.0
Scarlet fever	1.9	2.4	3.1	2.1	2.7
Whooping cough	3.4	1.9	1.5	2.6	1.5
Diphtheria	1.7	3.4	2.1	2.6	2.6
Influenza	53.8	36.3	23.8	44.7	20.7
Tuberculosis (all forms)	58.0	53.1	56.1	55.5	52.2
Tuberculosis of respiratory system	53.1	48.0	49.1	50.5	46.2
Syphilis, locomotor ataxia, and general paralysis of the insane	11.4	11.4	11.5	11.4	11.6
Cancer (all forms)	90.7	96.7	90.8	93.8	86.9
Diabetes mellitus	30.5	30.4	26.1	30.5	25.5
Cerebral hemorrhage; apoplexy	64.7	67.6	69.9	66.2	66.6
Diseases of the heart†	195.8	173.8	183.5	184.4	175.6
Diseases of the coronary arteries	33.5	35.4	29.0	34.5	26.2
Angina pectoris	9.4	10.5	11.5	9.9	9.6
Pneumonia (all forms)	131.0	127.6	105.2	129.2	105.2
Diarrhea and enteritis	4.3	5.6	5.7	5.0	6.2
Appendicitis	12.2	9.6	8.7	10.8	8.8
Chronic nephritis (Bright's disease)	61.4	59.0	64.6	60.2	62.4
Puerperal state—total	7.4	5.8	8.1	6.6	7.4
Suicides	7.4	7.9	6.9	7.6	7.7
Homicides	3.5	5.1	3.1	4.3	4.2
Accidents—total	54.9	57.0	45.3	56.0	50.1
Automobile accidents	21.0	24.5	11.7	22.8	15.7
All other diseases and conditions	175.2	168.7	176.7	171.8	170.0

*The rates for 1936 and 1937 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

†Excludes pericarditis, acute endocarditis, acute myocarditis, and angina pectoris.

Correspondence on the subjects discussed in these BULLETINS may be addressed to: The Editor,

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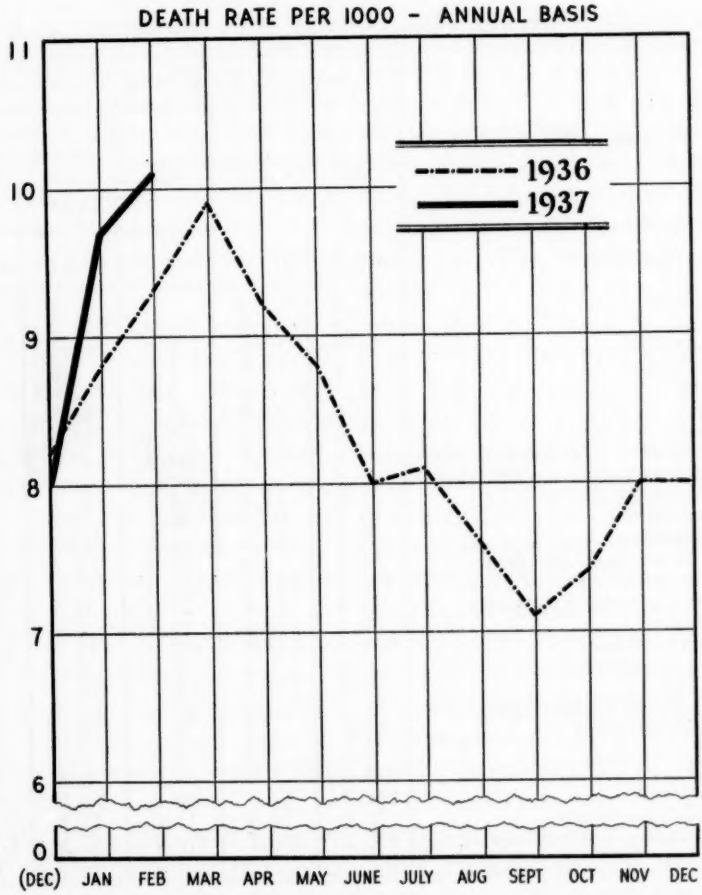
DEATH RATES FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE CO. - INDUSTRIAL DEP'T.
WEEKLY PREMIUM-PAYING BUSINESS - TOTAL PERSONS



	(DEC)	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1936		8.8	9.3	9.9	9.2	8.8	8.0	8.1	7.6	7.1	7.4	8.0	8.0
1937		9.7	10.1										

Rates are provisional for 1937

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